REMARKS

Claims 1-10 remain pending in the application with Claims 1 and 9 in independent form. Claims 1 and 7-10 are currently amended pursuant to the Examiner's recommendation to clarify that the step of mixing components (A)-(D) is simultaneous mixing. Support for currently amended claims 1 and 9 can be found at least in paragraph [0027] and Examples 1-3 of the subject application as published (specifically, U.S. Pat. Publ. Appl. No. 2006/0235120). Claims 4 and 9 are currently amended to correct minor typographical errors. Finally, claims 5 and 9 are currently amended for purposes of clarity with respect to single brackets which existed in the claims as originally filed. Thus, no new matter is added in the present Amendment. No claims are cancelled or withdrawn in the present Amendment.

Claims 1-10 stand rejected under 35 U.S.C. § 102(b) as being anticipated by United States Patent No. 3,476,826 to Millen (hereinafter "Millen"). As the Examiner is well aware, to properly establish anticipation under 35 U.S.C. §102, the reference must teach each and every element of that claim. See MPEP §2131. In addition, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." See *In re Wilson*, 424 F.2d 1382, 1385 (C.C.P.A. 1970). For these reasons, as well as the clarifying language in claims 1 and 9, the Examiner's rejections under 102(b) are respectfully traversed, as described in greater detail below.

As a preliminary matter, the Applicants point out that the Examiner has not addressed or acknowledged the arguments set forth in the previously filed Declaration, the contents of which are herein incorporated by reference.

The Examiner contends that Example 1 and the general disclosure of Millen anticipate claims 1-8 and 10. Specifically, the Examiner contends that Example 1 discloses a method of preparing vinyl triethoxy silane polysulfide by mixing vinyl triethoxy silane, a polysulfide polymer, and 2,2'-azobisisobutyronitrile. The Examiner further contends that "[t]he polysulfide may be a high sulfur rank polysulfide . . .which is formed by reacting a polysulfide polymer with elemental sulfur." This teaching is found in the detailed description of Millen. In making this rejection, the Examiner is improperly combining a portion of the detailed description into the teachings of Example 1. For Example, Example 1 explicitly lists each of the reactants utilized in the method. Elemental sulfur is not present or otherwise utilized in Example 1. Further, the portion of the detailed description of Millen the Examiner is citing describes "a high sulfur rank polysulfide formed by reacting a polysulfide polymer with elemental sulfur." Notably, Example 1 produces a vinyl triethoxy silane polysulfide, not a high sulfur rank polysulfide, as suggested by the Examiner. Rather, this portion of the detailed description of Millen corresponds with Example 2, which explicitly states that a polysulfide polymer is reacted with elemental sulfur to produce a high sulfur rank liquid polysulfide polymer. As such, the Examiner is improperly combining a teaching with respect to the high sulfur rank liquid polysulfide polymer of Example 2 as a teaching with respect to the vinyl triethoxy silane polysulfide of Example 1.

Because this new rejection by the Examiner is based on the detailed description and Example 1 of Millen, and because the portion of the detailed description relied upon by the Examiner correlates to Example 2 and cannot be properly read to supplement Example 1 when

sulfur is clearly not utilized or otherwise present in Example 1, this rejection is not any different than the Examiner's previous rejection based on Examples 1 and 2 of Millen. Because Example 1 and the detailed description of Millen do not disclose each and every element of claim 1, this rejection by the Examiner is respectfully traversed. In particular, Example 1 and the detailed description relating to use of sulfur to form the high rank polysulfide polymer of Example 2 in no way whatsoever teach mixing (A) a silicon-containing compound having a silicon atom-bonded monovalent organic group with an aliphatic unsaturated bond; (B) a polysulfide polymer with at least two mercapto groups in one molecule; and (C) an organic base or ammonia in the presence of (D) sulfur, as claimed. While Applicants make no concession as to the propriety of the Examiner's rejection of these claims based upon 35 USC § 102(b), especially in view of the fact that the Examiner has not established each and every element of independent claim 1 and has improperly read reactants disclosed in the detailed description of Millen into Example 1 where such reactants are not present, the Applicants have amended Claim 1 to render this rejection by the Examiner moot. In particular, even assuming that the Examiner could properly read portions of the detailed description of Millen relating to Example 2 into Example 1, Millen does not teach or otherwise disclose <u>simultaneously mixing</u> components (A)-(D) as presently claimed.

The Examiner also contends that the embodiments of the invention disclosed in Examples 3 and 4 of Millen anticipate claims 1-10. In particular, the Examiner contends that Examples 3 and 4 disclose a composition comprising a mixture of the resulting polymers of Examples 1 and 2. The Applicants respectfully point out that although Examples 3 and 4

disclose compositions comprising a mixture of the resulting polymers of Examples 1 and 2, Examples 3 and 4 do not include the reactants utilized in Examples 1 and 2 to produce these resulting polymers, because these reactants no longer exist individually. In making this rejection, the Examiner lists the reactants utilized in Examples 1 and 2 without describing the reactions taking place in each respective Example. For example, in Example 1, a polysulfide polymer, vinyl triethoxy silane, and 2,2'-azobisisobutyronitrile are reacted to produce vinyl triethoxy silane polysulfide. In Example 2, a liquid polysulfide polymer is reacted with paraformaldehyde in the presence of triethylamine, and is then reacted with elemental sulfur, n-dibutyl amine and water, which ultimately produces a high sulfur rank liquid polysulfide polymer. Stated differently, the end products of Examples 1 and 2 no longer include an organic base or elemental sulfur, let alone an organic base and sulfur, as suggested by the Examiner. To argue otherwise is illogical.

By way of example, the Examiner's argument will be extrapolated into simpler terms. Hypothetically, assume that a claim exists that is directed toward a mixture of (A) an isocyanate, (B) a polyol, (C) a polyamine, and (D) an epoxide. The Examiner's argument is such that an Example disclosing a composite article produced by mixing an epoxy resin and a polyurethane anticipates this hypothetical claim to the reactants of the epoxy resin (the polyamine and the epoxide) and the reactants of the polyurethane (the isocyanate and the polyol), even though these four reactants are never mixed in this Example and are no longer present individually. Further, mixing these four reactants would result in an entirely different product, as the isocyanate would not react exclusively with the polyol and the polyamine would not react

exclusively with the epoxide. The Examples of Millen in relation to the claims of the subject application are even more extreme, as Examples 1 and 2 include other reactants which undergo an entirely different reaction which would render the present invention unfit for its intended purpose. The Examiner is respectfully directed to paragraphs 12-14 of the Declaration included herewith.

In particular, in Example 2 of the '826 patent, a blocked polysulfide polymer is reacted with paraformaldehyde in the presence of triethylamine to form a blocked polysulfide polymer. The polysulfide polymer is then reacted with elemental sulfur and catalyzed by n-dibutylamine and water. If components of Example 2 were to be combined with components of Example 1, as suggested by the Examiner, the vinyl triethoxy silane *and* the vinyl triethoxy silane polysulfide of Example 1 would react with the water from Example 2 according to the following reaction mechanisms:

(I) $-Si(OR)_3 + nH_2O \; - Si(OH)_n(OR)_{3-n} + nROH$

(II) $2\text{-}Si(OH)_n(OR)_{3-n} \; -Si(OH)_{n-1}(OR)_{3-n}\text{-}O\text{-}Si(OH)_{n-1}(OR)_{3-n} + H_2O.$

In each of the reaction mechanisms (I) and (II) set forth immediately above, the dash (-) in front of the silicon atom illustrates that the silicon atom may be bonded to a carbon atom of a vinyl group, as in the instance in which it is the vinyl triethoxy silane which is reacting with water, or the silicon atom may be bonded to an atom in a polysulfide polymer, as in the instance in which it is the vinyl triethoxy silane polysulfide which is reacting with water. As known throughout the art, reaction mechanism (I) is commonly referred to as a hydrolysis reaction, and reaction mechanism (II) is commonly referred to as a condensation reaction.

Notably, water is not included in the chemical reaction of the method in the invention. As such, there is neither a water-initiated hydrolysis reaction, as represented by reaction mechanism (I) above, nor a condensation reaction of hydrolysates formed from a water-initiated hydrolysis reaction, as represented by reaction mechanism (II) above, in the present invention.

The Applicants also point out that Examples 3 and 4 of Millen explicitly set forth a laundry list of components included in each respective composition. For Example, Example 3 consists of the high sulfur rank polysulfide polymer of Example 2, carbon black, calcium carbonate, methyl ethyl ketone, stearic acid, vinyl triethoxy silane polysulfide of Example 1, lead peroxide, and a chlorinated biphenyl plasticizer. Notably, neither an organic base or sulfur, let alone a combination of an organic base and sulfur, is included in Example 3, as suggested by the Examiner. Rather, the high sulfur rank polysulfide polymer of Example 2 and the vinyl triethoxy silane polysulfide of Example 1 are included, which no longer include the reactants utilized to form these end products. Example 4 consists of the high sulfur rank polysulfide polymer of Example 2, carbon black, calcium carbonate, chlorinated biphenyl plasticizer, methyl ethyl ketone, stearic acid, lead peroxide, vintyl triethoxy silane polysulfide of Example 1, phenolic adhesion additive, polyepoxide, gamm glycidoxypropyl trimethoxy silane, and toluene diisocyanate. Notably, neither an organic base or sulfur, let alone a combination of an organic base and sulfur, is included in Example 4, as suggested by the Examiner. Rather, the high sulfur rank polysulfide polymer of Example 2 and the vinyl triethoxy silane polysulfide of Example 1 are included, which no longer include the reactants utilized to form these end

products. Examples 3 and 4 could in no way be read to include an organic base or sulfur, let alone a combination of an organic base and sulfur, as suggested by the Examiner.

Because Examples 3 and 4 of Millen do not disclose each and every element of claim 1, this rejection by the Examiner is respectfully traversed. In particular, Examples 3 and 4 in no way whatsoever teach mixing (A) a silicon-containing compound having a silicon atom-bonded monovalent organic group with an aliphatic unsaturated bond; (B) a polysulfide polymer with at least two mercapto groups in one molecule; and (C) an organic base or ammonia in the presence of (D) sulfur, as claimed. While Applicants make no concession as to the propriety of the Examiner's rejection of these claims based upon 35 USC § 102(b), especially in view of the fact that the Examiner has not established each and every element of independent claim 1 and has improperly asserted that reactants are present in Examples 3 and 4 of Millen, the Applicants have amended Claim 1 to render this rejection by the Examiner moot. In particular, Millen does not teach or otherwise disclose simultaneously mixing components (A)-(D) of the present claims.

Claims 1-10 also stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. No. 3,925,331 to Ely (hereinafter "Ely"). In particular, the Examiner contends that Ely discloses a moisture curable sealant composition which comprises the product of reacting a polysulfide with a silane, and that addition of a catalyst such as pyridine or sulfur enhances the amount of addition. The Examiner admits that Ely does not disclose a process wherein both a nitrogen containing base and sulfur are mixed with claimed components (A) and (B). However, the Examiner contends that it would have been obvious to prepare a silicon containing

polysulfide type polymer by mixing a vinyl silane, mercapto terminated polysulfide, nitrogen containing organic base and elemental sulfur because Ely teaches that pyridine and sulfur are functional equivalents.

As the Examiner is aware, combining known prior art elements is not sufficient to render the claimed invention obvious if the results would not have been predictable to one of ordinary skill in the art. *United States v. Adams*, 383 U.S. 39, 51-52, 148 USPQ 479, 483-84 (1966). Further, the mere fact that references can be combined or modified does not render the resultant combination [or modification] obvious unless the results would have been predictable to one of ordinary skill in the art. *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1734, 82 USPQ2d 1385, 1396 (2007). For the reasons set forth below, as well as the reasons described in Paragraphs 18-25 of the attached Declaration, the Applicants respectfully submit that the subject invention would not have been predictable to one of skill in the art upon a full reading of Ely.

The Applicants submit that the advantages and unpredictable results of utilizing an organic base or ammonia in combination with sulfur to catalyze a reaction between a polysulfide polymer having two mercapto groups per molecule and vinyl triethoxy silane are exemplified in Examples 1-3 when compared with Comparative Examples 1 and 2 of the subject application.

In particular, as set forth in Paragraph 23 of the attached Declaration, Comparative Examples 1 and 2 of the subject application each correspond with the individual teachings of Ely. For example, Ely teaches that pyridine or sulfur may be used as a catalyst. In Comparative

Example 1 of the subject application, a silicon-containing compound having a silicon atom-bonded monovalent organic group with an aliphatic unsaturated bond and a polysulfide polymer with at least two mercapto groups in one molecule were mixed with an organic base. Notably, the reaction between the silicon-containing compound having a silicon atom-bonded monovalent organic group with an aliphatic unsaturated bond and the polysulfide polymer with at least two mercapto groups in one molecule did not occur. Similarly, in Comparative Example 2 of the subject application, the silicon-containing compound having a silicon atom-bonded monovalent organic group with an aliphatic unsaturated bond and the polysulfide polymer with at least two mercapto groups in one molecule were mixed with elemental sulfur. Once again, the reaction between the silicon-containing compound having a silicon atom-bonded monovalent organic group with an aliphatic unsaturated bond and the polysulfide polymer with at least two mercapto groups in one molecule did not occur. Thus, Comparative Example 1 of the subject application corresponds to the teaching of Ely relating to pyridine, as pyridine is an organic base, and Comparative Example 2 of the subject application corresponds to the teaching of Ely relating to sulfur. Notably, the organic base and the sulfur were undesirable when used individually for the purposes of the present invention, as illustrated in Comparative Examples 1 and 2 of the subject application, and there is no reason whatsoever in the prior art to expect the excellent properties obtained by utilizing both an organic base and sulfur based on the teachings of Ely. As such, the Examiner's rejection of claims 1-10 in view of Ely is respectfully traversed based on the unexpected results of utilizing an organic base or ammonia in combination with

sulfur, as exemplified by Comparative Examples 1 and 2 relative to Examples 1-3 of the subject application.

Claims 1-10 also stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. No. 4,096,131 to Price et al. (hereinafter "Price et al.") in view of Ely. In particular, the Examiner contends that Price et al. discloses a process of forming a silyl containing polysulfide polymer by mixing a polysulfide with sulfur and methylvinyldimethoxysilane. The Examiner admits that Price et al. does not disclose a process wherein both a nitrogen containing base and sulfur are mixed with claimed components (A) and B). However, the Examiner contends that it would have been obvious to prepare a silicon containing polysulfide type polymer by mixing a vinyl silane, mercapto terminated polysulfide, nitrogen containing organic base and elemental sulfur because Ely teaches that pyridine and sulfur are functional equivalents. For the reasons set forth below, as well as the reasons described in Paragraphs 18-25 of the attached Declaration, the Applicants respectfully submit that the subject invention would not have been predictable to one of skill in the art upon a full reading of Price et al. in view of Ely.

In particular, as set forth in Paragraph 24 of the attached Declaration, Comparative Example 2 of the subject application corresponds to the teachings of Example 9 of Price et al., which is relied upon by the Examiner in this rejection. More specifically, Example 9 of Price et al. discloses a process of forming a silyl containing polysulfide polymer by mixing a polysulfide with sulfur and methylvinyldimethoxysilane in a nitrogen atmosphere. Similarly, in Comparative Example 2 of the subject application, vinyltrimethoxylsilane, diethoxymethane

disulfide polymer having molecular terminals capped with mercapto groups, and sulfur are reacted. Thus, three similar components are mixed in Example 9 of Price et al. and in Comparative Example 2 of the subject application. Notably, in the absence of the organic base in Comparative Example 2 of the subject application, the end product was undesirable for the purposes of the present invention, and there is no reason to expect the excellent properties obtained by utilizing both an organic base and sulfur based on the teachings of Price et al., even in view of Ely. Further, there is no reason whatsoever to combine Ely with Price et al. such that both an organic base and sulfur are utilized, nor is there any reason whatsoever to expect the advantages of utilizing both an organic base and sulfur. As such, the Examiner's rejection of claims 1-10 over Price et al. in view of Ely is respectfully traversed based on the unexpected results of utilizing an organic base or ammonia in combination with sulfur, as exemplified by Comparative Example 2 relative to Examples 1-3 of the subject application.

In view of the foregoing, the Applicants submit that independent claims 1 and 9, as well as claims 2-8 and 10 that depend therefrom, are both novel and non-obvious over the prior art including over Millen, Ely, and Price et al., as well as over Price et al. in view of Ely. As such, the Applicants believe the subject application is in condition for allowance, and such allowance is respectfully requested.

This Response is timely filed; thus, it is believed that no additional fees are due. However, if necessary, the Commissioner is authorized to charge Deposit Account 08-2789 in the name of Howard & Howard Attorneys PLLC for any additional fees or to credit the account for any overpayment.

Respectfully submitted,

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